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Title: RLWTF-UP -- Low Level Waste Project Overview and Status

Author(s): Cagle, Gregory Allen

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RLWTF-UP – Low Level Waste

Project Overview and Status

April 18, 2016

Radioactive Liquid Waste Treatment Facility Upgrade Project - Low Level Waste Project (RLWTF-LLW)

LLW Project

PROJECT STATUS – March 2016													
TPC (\$M)	% Complete (BAC)	CBB (\$M)	PM EAC (\$M)	FPD EAC (\$M)	CPI	CD-4	CD-4 CBB	PM Forecast	FPD Forecast	SPI	Safety	PM Assessment	FPD Assessment
\$ 82.7	60%	\$ 68.3	\$ 70.4*	\$ 78.1**	1.02	5/14/18	6/16/17	10/11/17*	2/28/18	0.72			

Overall Assessment:

* Being re-evaluated thru the Annual EAC process

Schedule

- Received revised subcontractor schedule in December; Yearout currently performing behind this schedule
 - Performance for January and February greatly improved over previous months
 - Treatment building walls complete March 7 with double-T roof beams set March 11
- Projecting 5 months behind CBB

**** TPC EAC**

Cost

- Although current performance is good, schedule extension will challenge TPC

Challenges/Needs:

- Schedule – Evaluating opportunities to improve schedule performance**
 - WCRR access from north gate approval received - Several months schedule improvement from working utility building/effluent tank area simultaneously
 - Early start on drum storage area and welding of treatment building wall supports
- Cost - Completion of Annual EAC; with support from supporting AD's**
- Contract – Developing claims and defenses for any future Yearout/CTSI claims**
- Developing notice of intent to file a formal claim if original contract schedule exceeded**
 - Developing rebuttal to NNSA independent safety assessment
- Customer - Completed Voice of the Customer exercise**
 - Completed Partnering session with NNSA

Staffing – added new Construction Manager/CAM, Turnover to Ops CAM, and 2 project controls resources



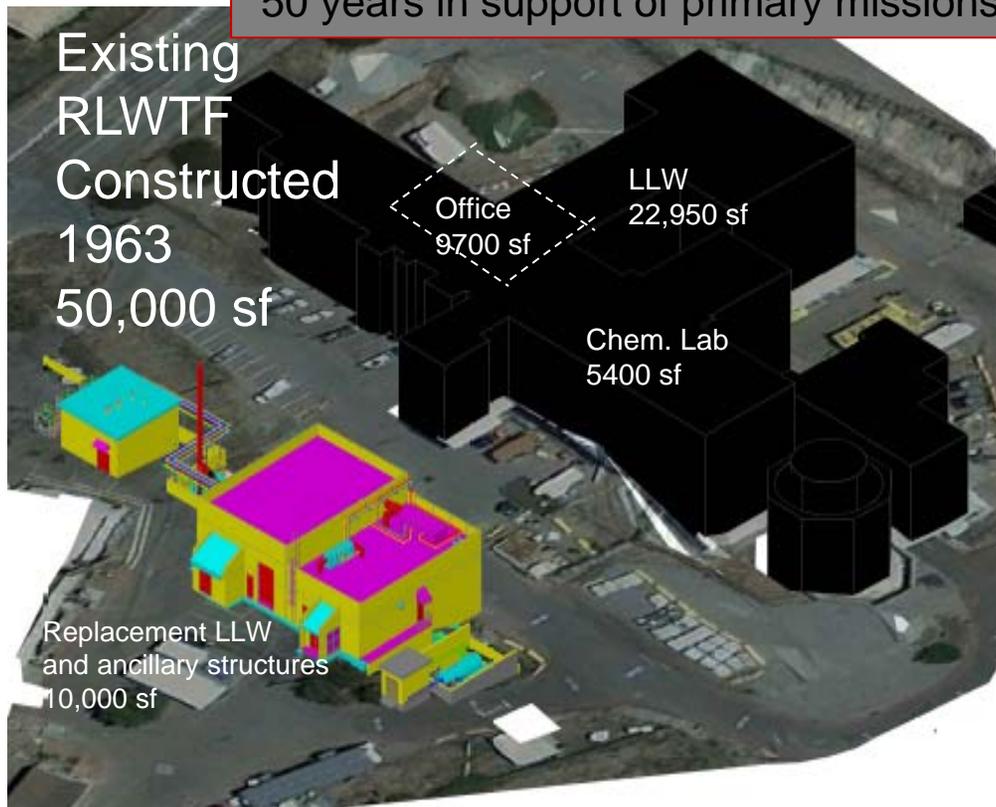
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RLWTF-UP Mission Need

The RLWTF-UP will provide the enduring RLW treatment capability to collect, store, treat, and discharge in a safe, reliable and effective manner for the next 50 years in support of primary missions at LANL.



Drivers:

- \$20M invested to enable continued operations
- Many potential single point failures still exist (fire protection, electrical, seismic, etc.)
- \$3-5M of additional investment required annually to enable continued operations

RLWTF-UP Scope Summary



01.03 Low Level Waste Treatment Facility

- Scope: Radiological facility that treats 5.0 million l/yr of low level liquid waste with process area, chemical lab, operations and common support functions
- TPC: \$82,694,000
- Schedule: CD-4 May 2018

Transuranic Liquid Waste Treatment Facility

- Scope: HazCat 3 Facility that treats 0.029 million l/yr TRU Liquid waste
- TPC Range: \$62M – \$96M
- Schedule Range: CD-4 2019 - 2020

Zero Liquid Discharge (ZLD) Waste Treatment Facility

- Scope: Concrete evaporation tanks, doubled lined with leak detection and pump house
- TPC at CD-4: \$7,975,000
- Schedule: CD-4 October 2012

LLW Performance Parameters

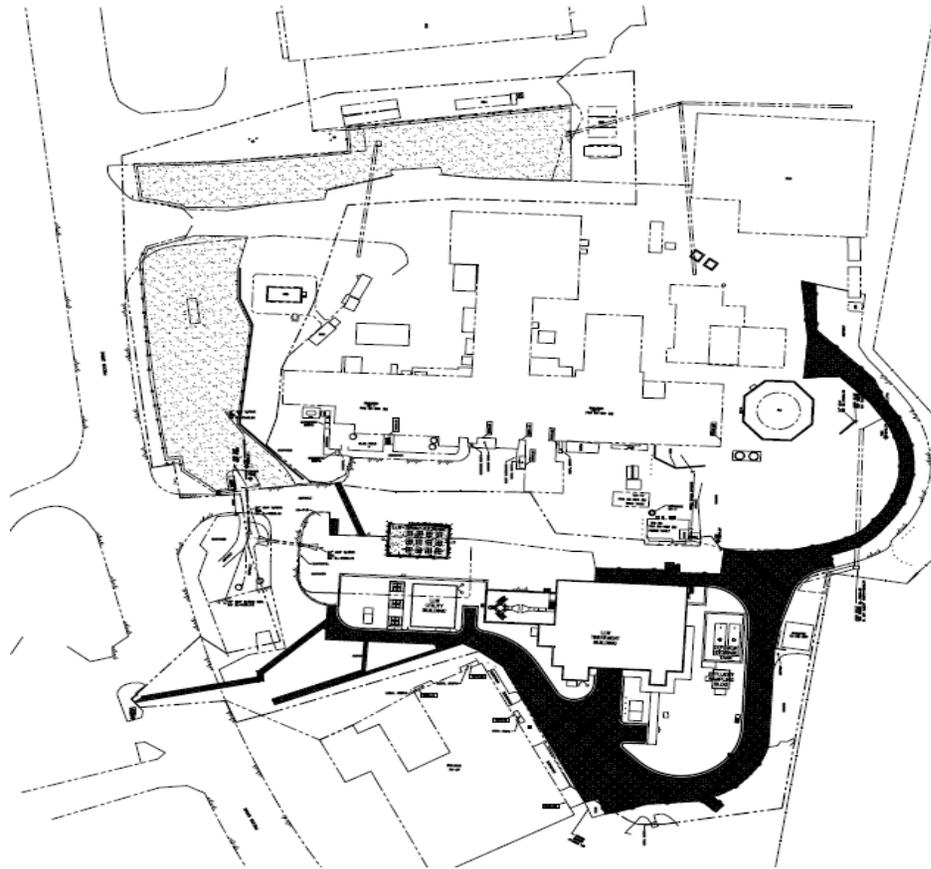
Key Performance Parameters

- Design and construct the capability to process 5.0 million liters per year of industrial/low level radioactive liquid waste verified by an average process rate of 25 gallons per minute.
- The LLW treatment facility is designed and constructed to meet discharge permit requirements as of March 2014.

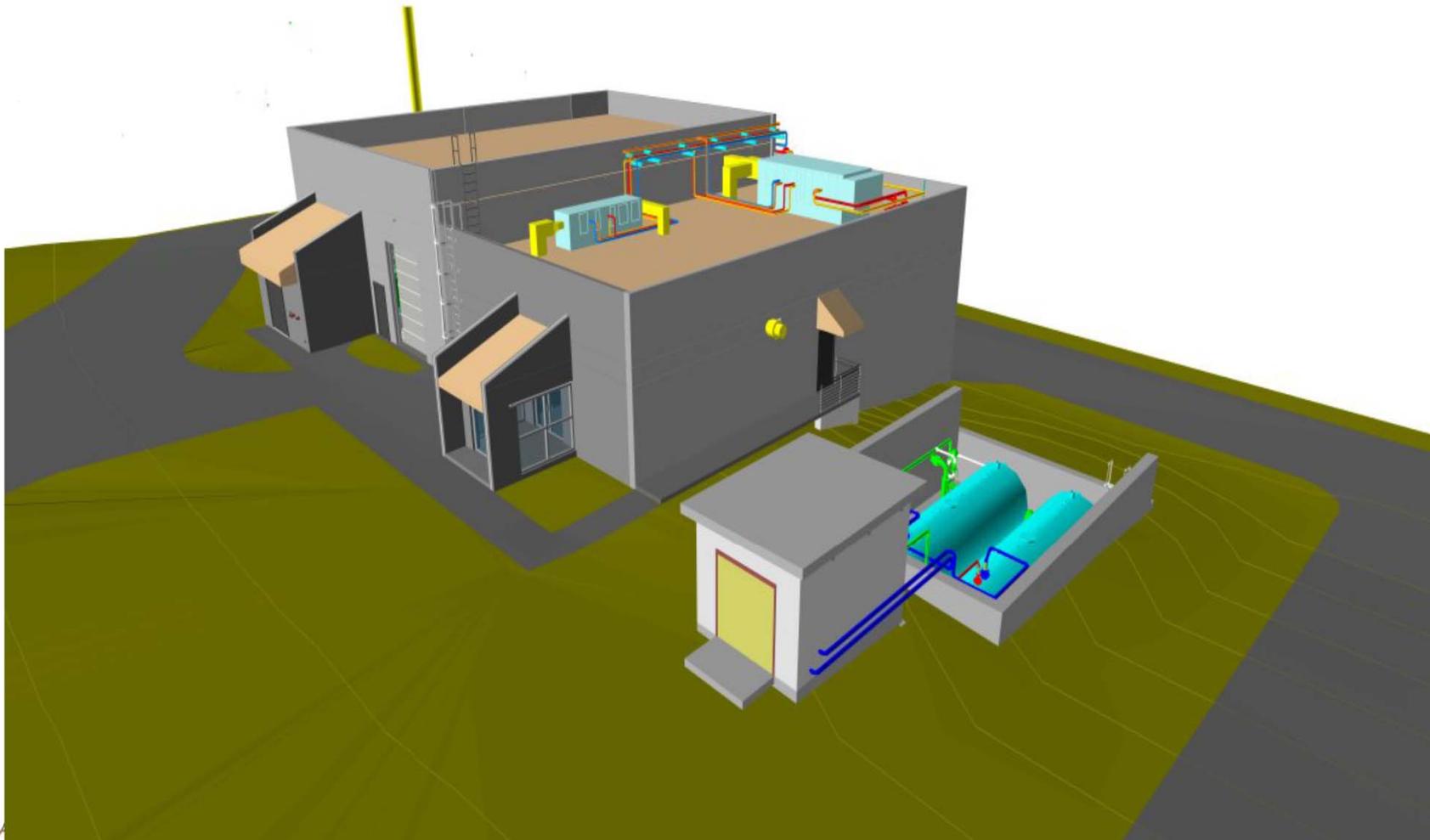
Scope

- **Design (01.03.01 & 01.03.02) and Construct (01.03.03) low level liquid waste treatment facility**
 - Component lifetime of 30 years
 - Facility lifetime of 50 years
- **Treatment Building**
 - No safety significant or safety class systems, below Hazcat 3
 - Concrete structure 7500 ft²
 - Process area
 - Chemical analysis laboratory
 - Small operations center
 - Change rooms
- **Separate utility building**
- **Separate effluent storage**
- **Separate drum storage area**

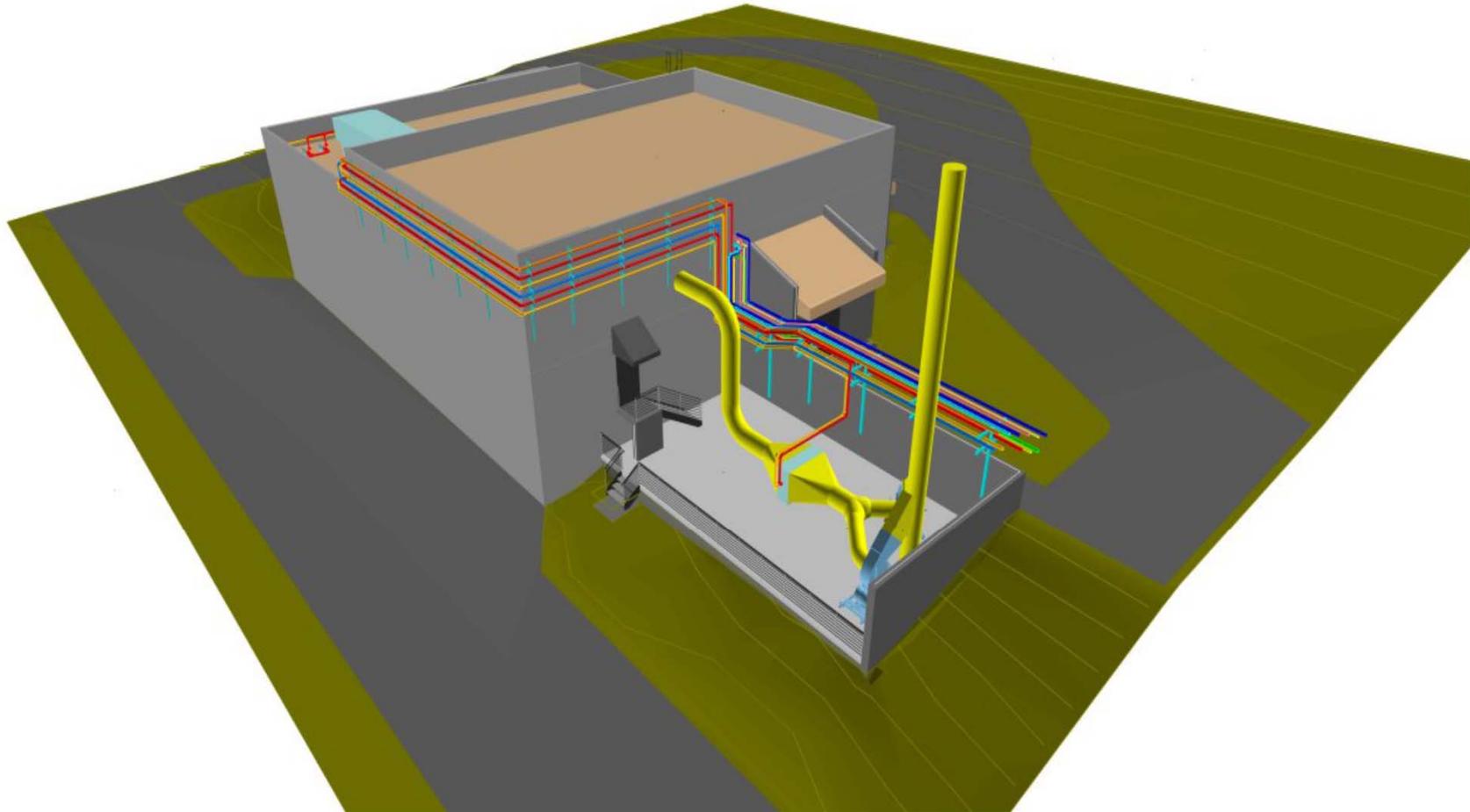
LLW Construction Site Plan



Process Building Looking North-East



Process Building Looking South-West



LLW Floorplan

LLW Project – Floor Plan



- Radiological Facility
- No New Technology
- All process equipment is commercial off the shelf skids
- Processes currently used at Existing RLWTF
- Process Area: ~3900 sq. ft.
- Support Area: ~3600 sq. ft.

Breaking Ground on Construction



Treatment Building Footer Formwork



Installation of the New Water Line



Numerous Underground Utilities



Natural Gas Line Crossing Road



Utility Building Retaining Wall Placement



Treatment Building Formwork



Installing the Double Tee Roof Beams



Current Site Status



Project Execution

- LANL provides overall management under contract to NNSA
- IPT team consists of dedicated project personnel, and SMEs and other personnel as needed
- Design (Title II) and Engineer of Record (Title III) support provided by subcontractor
- LANL Construction Services perform utility tie-in activities, potholing, and general construction support
- LANL provide GFE (Rad monitoring equipment, electrical transformers)
- LANL procure and install security and telecom systems
- Construction subcontractor constructs building and perform component level startup testing
- LANL conduct system level commissioning and simulant testing
- LANL conducts Management Self-Assessment

Subcontracted Activities

■ Yearout Industrial

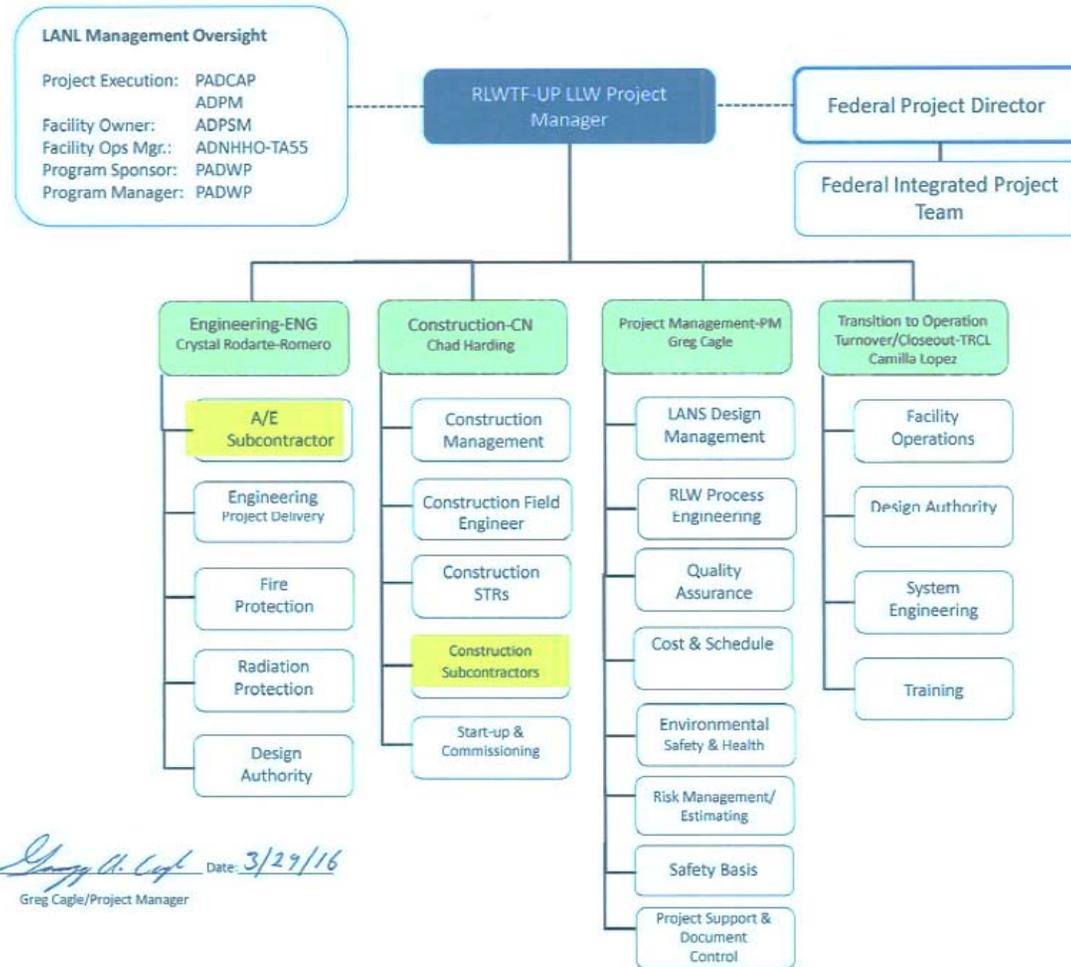
- Provide general contracting services
- Self performing concrete, mechanical, piping and process equipment
- Lower tier subcontractors for earthwork, electrical, fire protection, instrument and controls, startup
- Procuring all equipment and materials except radiation protection, telecom, security, and main electrical transformers

■ Weidlinger-Navarro JV

- Represent Engineer of Record
- Consist of numerous A/E firms

Subcontract Name	Scope	Contract Type	Contract Value
Yearout Industrial	Construction	Firm Fixed Price	\$21,556,186
Weidlinger-Navarro JV Norther NM	Title III Engineering	Time and Materials	\$1,835,240
Total			\$23,391,426

Project Organization



Current Status

- **Overall 60 % complete**
- **Preliminary and final design complete**
- **Procurement**
 - GFE received: Radiation monitoring equipment and electrical transformers
- **Treatment building construction in process: 20% complete**
 - Primarily civil activities – earthwork, utilities, and concrete
- **Title III design subcontract supporting construction**
 - Review of submittals, and processing field changes and RFIs
 - Technical issue resolution
- **Transition to Operations began ahead of schedule**
 - Prepared MSA plan
 - Preparing operational procedures and training material

Project Summary Cost Status

PM EAC Explanations:
PM Most Likely consists CAM EAC plus unresolved trends:

- None at this time

PM Best case consists of CAM EAC plus potential opportunities

- Working utility building and effluent tank area simultaneously
- Schedule reduction from construction complete to as-build drawings
- Improved quality of concrete flat work
- Construction S/C back-charge for construction management support

PM Worst case consists of the PM most likely plus the following items:

- Risk program realization value
- Potential Delay claim by lower tier subcontractor

	Budget Annual			EAC		
	CD2 BL	EAC	BAC	Current	Last Mo	Delta
TEC	\$47,622	Mar-16	\$51,737	\$59,793	\$59,078	\$715
OPC	\$10,843	TBD	\$10,807	\$10,654	\$10,584	\$70
Subtotal - PMB	\$58,464	TBD	\$62,544	\$70,447	\$69,662	\$785
Remaining MR	\$9,011	TBD	\$5,799			
CBB	\$67,475	TBD	\$68,343	\$70,447	\$69,662	\$785
EAC Most Likely				\$70,447	\$69,662	\$785
EAC Worst Case				\$74,648	\$73,862	\$785
EAC Best Case				\$68,777	\$68,062	\$715

Remaining Cont.	\$10,218		\$9,351	\$7,248	\$8,033	(\$785)
ODC	\$5,000		\$5,000	\$5,000	\$5,000	\$0
TPC	\$82,694		\$82,694	\$82,694	\$82,694	\$0

TPC = ML CBB + Cont. + ODC

	SPI	CPI
TEC (cum)	0.69	1.03
OPC (cum)	0.91	0.99
TPC	0.72	1.02
Current Month (TPC)	0.25	0.42
3 Month Ave (TPC)	0.28	0.54

PMB % Complete	TPCI (PM-EAC)	TPCI (BAC)
60%	0.73	0.97

LLW Milestones

Project Health Assessment:

Safety	PM Proj. Health	Customer	
Key Milestones	Baseline	December Schedule S/C	Forecast/Actual
Construction S/C NOA	10/15/14	N/A	12/10/14A
Concrete Footers complete	4/9/15	N/A	9/11/15A
Tie Second Level Rebar	NA	2/16/16	2/18/16A
Treatment Building Dried In	NA	4/26/16	6/30/16F
Utility Bldg. Foundations	NA	8/15/16	6/15/16F
Site Work/Util. Bldg. Complete	3/21/16	4/19/17	8/21/16F
Treatment Bldg. Complete	3/31/16	4/27/17	4/28/17F
MSA Execution (begin)	7/07/16	N/A	5/23/17F
MSA Complete	9/27/16	N/A	9/11/17F
LLW CD-4 PMB	12/19/16	N/A	10/11/17F
LLW CD-4 CBB	6/16/17	N/A	10/11/17F
LLW CD-4 TPC	5/14/18	N/A	5/14/18F

FPD – Performance Evaluation and Measurement Plan (PEMP) Milestones	*Current Baseline	Actual/Forecast
Utility Building Overex	12/15/2015	2/22/16A
Tie Second Level Rebar	2/16/2016	2/18/16A
Above Grade Concrete Work Complete	3/22/2016	7/11/16F
Treatment Building Dried In	4/26/2016	6/26/16F
Foundations Complete to Grade Effluent Storage Tank	6/29/2016	11/26/16F
Exterior Finish Complete	7/6/2016	10/4/16F
Treatment Bldg. Interior Finish Complete	7/11/2016	12/22/16F
Drum Storage Area Complete	8/10/2016	6/29/16F
Utility Bldg. Foundation Complete to Grade	8/15/2016	6/22/16F
Utility Bldg. CMU Complete	9/13/2016	8/3/16F
Treatment Bldg. MEP Systems Complete	10/18/2016	3/28/17F
Effluent Storage Tank Pit Complete	10/18/2016	3/26/17F
Utility Bldg. Dried In	11/2/2016	9/14/16F
*Current baseline data is taken from the Yearout December 2015 schedule.		

Upcoming Federal Actions:

1. CO concur with LANS EVMS decertification compensatory measures



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LLW Project Concerns

- Numerous marked and unmarked utilities has slowed excavation work
- Poor performance by lower tier civil subcontract has resulted in significant schedule delays
- Prime subcontractor has little experience as a general subcontractor